

IN THE CLAIMS:

Pending Claims

Claim 1 (Currently Amended): A method for processing annotated images comprising the following steps:

removing one or more textual annotations from a grayscale annotated ultrasound image to derive a ~~first~~ modified ultrasound image;

processing said ~~first~~ modified ultrasound image using an algorithm to derive a processed ultrasound image; and

merging the removed one or more textual annotations with said processed ultrasound image to derive a merged ultrasound image.

Claim 2 (Currently Amended): The method as recited in claim 1, wherein said removing step comprises the following: deriving a first binary mask defining one or more image regions; and multiplying said first binary mask and said annotated ultrasound image to derive said ~~first~~ modified ultrasound image.

Claim 3 (Currently Amended): The method as recited in claim 2, wherein said merging step comprises the following: inverting said first binary mask to derive a second binary mask defining one or more annotation regions; multiplying said second binary mask and said annotated ultrasound image to derive a ~~second~~ modified image; and merging said ~~second~~ modified image and said processed ultrasound image to derive said merged ultrasound image.

Claim 4 (Currently Amended): The method as recited in claim 1, wherein the merged textual annotations occupy the same pixels in said merged ultrasound image that the removed textual annotations originally occupied in said annotated ultrasound image.

Claim 5 (Original): The method as recited in claim 1, wherein said removing step comprises morphology-based processing and thresholding.

Claim 6 (Currently Amended): The method as recited in claim 1, wherein said removing step comprises the following: grayscale erosion of said annotated ultrasound image using a structuring element to derive an eroded image; thresholding said eroded image to derive a first binary mask; dilation of said first binary mask using said structuring element to derive a second binary mask defining one or more image regions; and multiplying said second binary mask and said annotated ultrasound image to derive said ~~first~~ modified ultrasound image.

Claim 7 (Currently Amended): The method as recited in claim 6, wherein said merging step comprises the following: inverting said second binary mask to derive a third binary mask defining an annotation region; multiplying said third binary mask and said annotated ultrasound image to derive a ~~second~~ modified image; and merging said ~~second~~ modified image and said processed ultrasound image to derive said merged ultrasound image.

Claim 8 (Original): The method as recited in claim 1, wherein said removing step comprises thresholding and pixel connectivity-based analysis.

Claim 9 (Currently Amended): The method as recited in claim 1, wherein said removing step comprises the following: thresholding the annotated ultrasound image to derive a first binary mask; using 8-connected analysis to reject segments smaller than a prespecified size from said first binary mask to derive a second binary mask defining one or more image regions; and multiplying said second binary mask and said annotated image to derive said ~~first~~ modified ultrasound image.

Claim 10 (Currently Amended): The method as recited in claim 9, wherein said merging step comprises the following:

inverting said second binary mask to derive a third binary mask defining an annotation region; multiplying said third binary mask and said annotated ultrasound image to derive a ~~second~~ modified image; and merging said ~~second~~ modified image and said processed ultrasound image to derive said merged ultrasound image.

Claim 11 (Currently Amended): The method as recited in claim 1, wherein said removing step comprises the following: thresholding the annotated ultrasound image to derive a first binary mask; using 8-connected analysis to reject segments smaller than a prespecified size from said first binary mask to derive a second binary mask defining one or more image regions; removing holes from said second binary mask to derive a third binary mask; and multiplying said third binary mask and said annotated ultrasound image to derive said ~~first~~ modified ultrasound image.

Claim 12 (Currently Amended): The method as recited in claim 1, wherein said processing step comprises filtering to enhance said ~~first~~ modified ultrasound image.

Claim 13 (Currently Amended): A computer system programmed to perform the following steps:

removing one or more textual annotations from a grayscale annotated ultrasound image to derive a ~~first~~ modified ultrasound image;

processing said ~~first~~ modified ultrasound image using an algorithm to derive a processed ultrasound image; and

merging the removed one or more textual annotations with said processed ultrasound image to derive a merged ultrasound image.

Claim 14 (Currently Amended): The system as recited in claim 13, wherein said removing step comprises the following: deriving a first binary mask defining one or more image regions; and multiplying said first binary mask and said

annotated image to derive said ~~first~~ modified ultrasound image.

Claim 15 (Currently Amended): The system as recited in claim 14, wherein said merging step comprises the following: inverting said first binary mask to derive a second binary mask defining one or more annotation regions; multiplying said second binary mask and said annotated ultrasound image to derive a ~~second~~ modified image; and merging said ~~second~~ modified image and said processed ultrasound image to derive said merged ultrasound image.

Claim 16 (Currently Amended): The system as recited in claim 13, wherein said removing step comprises the following: grayscale erosion of said annotated ultrasound image using a structuring element to derive an eroded image; thresholding said eroded image to derive a first binary mask; dilation of said first binary mask using said structuring element to derive a second binary mask defining one or more image regions; and multiplying said second binary mask and said annotated ultrasound image to derive said ~~first~~ modified ultrasound image.

Claim 17 (Currently Amended): The system as recited in claim 16, wherein said merging step comprises the following: inverting said second binary mask to derive a third binary mask defining an annotation region; multiplying said third binary mask and said annotated ultrasound image to derive a ~~second~~ modified image; and merging said ~~second~~ modified image and said processed ultrasound image to derive said merged ultrasound image.

Claim 18 (Currently Amended): The system as recited in claim 13, wherein said removing step comprises the following: thresholding the annotated ultrasound image to derive a first binary mask; using 8-connected analysis to reject segments smaller than a prespecified size from said first binary mask to derive a second binary mask defining one or more image regions; and multiplying said second binary mask

and said annotated ultrasound image to derive said ~~first~~ modified ultrasound image.

Claim 19 (Currently Amended): The system as recited in claim 18, wherein said merging step comprises the following: inverting said second binary mask to derive a third binary mask defining an annotation region; multiplying said third binary mask and said annotated ultrasound image to derive a ~~second~~ modified image; and merging said ~~second~~ modified image and said processed ultrasound image to derive said merged ultrasound image.

Claim 20 (Currently Amended): The system as recited in claim 13, wherein said removing step comprises the following: thresholding the annotated image to derive a first binary mask; using 8-connected analysis to reject segments smaller than a prespecified size from said first binary mask to derive a second binary mask defining one or more image regions; removing holes from said second binary mask to derive a third binary mask; and multiplying said third binary mask and said annotated ultrasound image to derive said ~~first~~ modified ultrasound image.

Claim 21 (Currently Amended): The system as recited in claim 13, wherein said processing step comprises filtering to enhance said ~~first~~ modified ultrasound image.

Claim 22 (Currently Amended): A method for processing annotated images comprising the following steps:

removing the hue and saturation components from a HSV color annotated ultrasound image to derive a brightness component annotated ultrasound image;

removing one or more textual annotations from the brightness component annotated image to derive a ~~first~~ modified ultrasound image;

processing said ~~first~~ modified ultrasound image using an algorithm to derive a processed ultrasound image; and

merging the removed one or more textual annotations and the removed hue and saturation components with said processed ultrasound image to derive a merged ultrasound image.

Claim 23 (Currently Amended): The method as recited in claim 22, wherein said removing step comprises the following: deriving a first binary mask defining one or more image regions; and multiplying said first binary mask and said annotated ultrasound image to derive said ~~first~~ modified ultrasound image.

Claim 24 (Currently Amended): The method as recited in claim 23, wherein said merging step comprises the following: inverting said first binary mask to derive a second binary mask defining one or more annotation regions; multiplying said second binary mask and said annotated image to derive a ~~second~~ modified image; and merging said ~~second~~ modified image and said processed ultrasound image with said removed hue and saturation components to derive said merged ultrasound image.

Claim 25 (Currently Amended): The method as recited in claim 22, further comprising the step of converting an RGB color annotated ultrasound image from RGB color space to HSV color space to derive said HSV color annotated ultrasound image.

Claim 26 (Currently Amended): A computer system programmed to perform the following steps:

removing the hue and saturation components from an HSV color annotated ultrasound image to derive a brightness component annotated ultrasound image;

removing one or more textual annotations from said brightness component annotated ultrasound image to derive a ~~first~~ modified ultrasound image;

processing said ~~first~~ modified ultrasound image using an algorithm to derive a processed ultrasound image; and

merging the removed one or more textual annotations and the removed hue and saturation components with said processed ultrasound image to derive a merged ultrasound image.

Claim 27 (Currently Amended): The system as recited in claim 26, wherein said removing step comprises the following: deriving a first binary mask defining one or more image regions; and multiplying said first binary mask and said annotated ultrasound image to derive said ~~first~~ modified ultrasound image.

Claim 28 (Currently Amended): The system as recited in claim 27, wherein said merging step comprises the following: inverting said first binary mask to derive a second binary mask defining one or more annotation regions; multiplying said second binary mask and said annotated ultrasound image to derive a ~~second~~ modified image; and merging said ~~second~~ modified image and said processed ultrasound image with said removed hue and saturation components to derive said merged ultrasound image.

Claim 29 (Currently Amended): The system as recited in claim 26, further programmed to perform the step of converting an RGB color annotated ultrasound image from RGB color space to HSV color space to derive said HSV color annotated ultrasound image.

Claim 30 (Currently Amended): A computerized image enhancement system programmed to perform the following steps:

receiving a grayscale annotated ultrasound image;

removing one or more textual annotations from said annotated ultrasound image to derive a ~~first~~ modified ultrasound image;

processing said ~~first~~ modified ultrasound image using an algorithm to derive an enhanced ultrasound image; and

merging the removed one or more textual annotations with said enhanced ultrasound image to derive an annotated

enhanced ultrasound image.

Claim 31 (Currently Amended): The system as recited in claim 30, wherein said removing step comprises the following: deriving a first binary mask defining one or more image regions; and multiplying said first binary mask and said annotated ultrasound image to derive said ~~first~~ modified ultrasound image.

Claim 32 (Currently Amended): The system as recited in claim 31, wherein said merging step comprises the following: inverting said first binary mask to derive a second binary mask defining one or more annotation regions; multiplying said second binary mask and said annotated ultrasound image to derive a ~~second~~ modified image; and merging said ~~second~~ modified image and said enhanced ultrasound image to derive said annotated enhanced ultrasound image.